

What is claimed is:

1. A method of modifying a polymeric material which comprises (1) the step of activation-treatment and (2) the step of a hydrophilic polymer-treatment in this order.

5 2. A method of modifying a polymeric material which comprises (1) the step of activation-treatment, (2) the step of a hydrophilic polymer-treatment and (3) the step of monomer grafting in this order.

10 3. A method of modifying a polymeric material which comprises (1) the step of a solvent-treatment, (2) the step of activation-treatment and (3) the step of a hydrophilic polymer-treatment in this order.

4. A method of modifying a polymeric material which comprises (1) the step of a solvent-treatment, (2) the step of activation-treatment, (3) the step of a hydrophilic polymer-treatment and (4) the step of monomer grafting in this order.

5. The method according to any one of Claims 1 to 4, wherein said polymeric materials are homopolymers or copolymers of one or more compounds selected from the group consisting of: olefins, vinyl compounds except olefins, vinylidene compounds and other compounds having carbon-carbon double bonds; polyesters, polyamides, polyimides, polyurethanes, polybenzoates, poly(benzoxazole)s, poly-(*p*-phenylene benzbisoxazole)s, poly(benzthiazole)s, poly-(*p*-phenylene benzbis-thiazole)s, 20 poly(alkyl-*p*-hydroxybenzoate)s, poly(benzimidazole)s, carbon fiber materials, polyphenols, cellulose acetate, regenerated cellulose, vynylon, polychlel, casein, wool, silk and hemp (or ramie, jute).

6. The method according to any one of Claims 1 to 4, wherein said polymeric material is in the form of any one of fibers, woven fabrics, knitted webs, non-woven fabrics, plates, rods, films, sheets, porous films, sheets, members or products of molded materials in a given shape or composite materials with other materials.

7. The method according to any one of Claims 1 to 4, wherein said activation process is at least one of the following treatments; an ozone treatment, a plasma treatment, a UV irradiation treatment and a high voltage electric discharge treatment.

30 8. The method according to any one of Claims 1 to 4, wherein said hydrophilic

polymer is at least one member selected from the group consisting of polyvinyl alcohol, carboxymethylcellulose, polyhydroxy ethylmethacrylate, poly- α -hydroxy vinylalcohol, polyacrylic acid, polyvinyl pyrrolidone, polyalkylene glycols, starch, silk fibroin, sericin, agar, gelatin, egg white and sodium arginate.

5 9. The method according to Claim 2 or Claim 4, wherein said monomer is a compound having carbon-carbon double bond.

10 10. The method according to claim 9, wherein said monomers are at least one kind of monomer or a mixture of monomers selected from the following monomers; acrylic acid, methacrylic acid, vinyl acetate, 2-butene acid, ethylene sulfonic acid, hydroxyalkyl acrylate, hydroxyalkyl methacrylate, acryl amide, vinyl pyridine, vinyl pyrrolidone, vinyl carbazole, maleic anhydride and pyromellitic dianhydride.

11 11. The method according to any one of Claims 1 to 4, wherein said step of a hydrophilic polymer-treatment and said step of monomer grafting are carried out in the presence of catalysts or initiators.

15 12. The method according to Claim 2 or Claim 4, wherein said step of monomer grafting is carried out by any one of or both of the following two methods: (1) heating in the presence of catalysts or initiators and (2) UV irradiation in the presence or absence of catalysts, initiators or photo-sensitizers.

20 13. The method according to Claim 11 or Claim 12, wherein said initiators are at least one compound selected from the following compounds: peroxides, cerium ammonium nitrate (IV) and persulfates.

14. An improved polymeric material obtained by the improvement method according to any one of Claims 1 to 13.

25 15. Battery separators containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

16. Wiping/cleansing materials containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

17. Filter mediums containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

30 18. Water absorption materials containing improved polymeric materials

obtained by the improvement method according to any one of Claims 1 to 13..

19. Water retention materials containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

5 20. Materials for microorganism culture media containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

21. Composite materials containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

22. Members of writing materials containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

10 23. Polymeric materials improved in adhesion property obtained by the improvement method according to any one of Claims 1 to 13.

24. Medical/sanitary/cosmetic supplies containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

15 25. Synthetic papers made of improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

26. Orthodontic brackets containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.

20 27. Textile products for clothing or inner battings of beds/bed clothing containing improved polymeric materials obtained by the improvement method according to any one of Claims 1 to 13.